



**U.S. Department of the Interior
Office of Inspector General**

EVALUATION REPORT

YEAR 2000 READINESS OF AUTOMATED INFORMATION SYSTEMS AT THE BUREAU OF INDIAN AFFAIRS

**REPORT NO. 98-I-479
JUNE 1998**



United States Department of the Interior

OFFICE OF INSPECTOR GENERAL
Washington, D.C. 20240

JUN - 5 1998

EVALUATION REPORT

Memorandum

To: Assistant Secretary for Indian Affairs
The Special Trustee for American Indians

From: Robert J. Williams *Robert J. Williams*
Acting Inspector General

Subject: Evaluation Report on the Year 2000 Readiness of Automated Information Systems at the Bureau of Indian Affairs (No. 98-I-479)

INTRODUCTION

This report presents the results of our evaluation of the year 2000 (Y2K) readiness of automated information systems at the Bureau of Indian Affairs. The objective of our review was to determine whether the Bureau (1) inventoried its automated information systems and identified those systems that were mission critical and were not Y2K compliant, (2) developed auditable cost estimates for renovating systems to be Y2K compliant, (3) identified by name an individual responsible for ensuring that the Bureau is Y2K compliant, (4) ensured that responsible individuals' personnel performance evaluation plans included critical elements related to identifying and remedying Y2K problems, (5) developed a credible plan that included milestones and a critical path to ensure that the Bureau is Y2K compliant, and (6) developed a contingency plan that would address the failure of any part of the systems not being Y2K ready. This review was conducted at the request of the Department of the Interior's Chief Information Officer to assist the Information Officer in monitoring the progress of Departmental agencies in ensuring Y2K readiness, implementing Y2K compliant systems, and validating the accuracy of the information reported by the bureaus and Departmental offices to the Chief Information Officer.

BACKGROUND

The "Y2K problem" is the term used to describe the potential failure of information technology systems, applications, and hardware related to the change to the year 2000. Many computers that use two digits to keep track of the date will, on January 1, 2000, recognize "double zero" not as 2000 but as 1900. This could cause computers to stop running or to start generating erroneous data. The problem has been recognized as nationally

significant by the President in Executive Order No. 13073, issued in February 1998. The Secretary of the Interior, in a December 1997 memorandum, stated that the Y2K problem was critical to the Department's meeting its mission and that resolution of the problem was one of his highest priorities. Further, Office of Management and Budget Memorandum 98-02, "Progress Reports on Fixing Year 2000 Difficulties," issued on January 20, 1998, requires all Federal executive branch agencies, to ensure that Federal Government systems do not fail in the year 2000, to have all systems, applications, and hardware renovated by September 1998; validated by January 1999; and implemented (that is, "fixes to all systems--both mission critical and nonmission critical") by March 31, 1999, to ensure that Federal Government systems do not fail in the year 2000. The Office of Management and Budget states in Memorandum 98-02 that it is to provide "information to the Congress and the public as part of its [Office of Management and Budget's] quarterly summary reports on agency progress . . . [and] to report on the status of agency validation and contingency planning efforts and on progress in fixing . . . equipment that is date sensitive."

The Department has a multitiered approach to managing the Y2K problem that includes a top tier comprising the Secretary of the Interior; the Information Technology Steering Committee, which comprises the Chief of Staff and Assistant Secretaries; and the Chief Information Officer, who is responsible for the Department's Y2K issues. This tier, which represents senior-level Departmental managers, provides the Y2K project's overall direction and resources and ensures accurate reporting to external organizations such as the Office of Management and Budget and the Congress. A Departmentwide Y2K project team, which reports to the Chief Information Officer and comprises representatives from each agency and the Office of the Secretary, is tasked with developing the Department's Year 2000 Management Plan, refining inventory data on the Department's mission-critical and information technology portfolio systems,¹ and monitoring and reporting the progress of each conversion. In addition, a Y2K Embedded Microchip² Coordinators Team has been established to inventory and monitor embedded microchip technology Y2K problems. The team is led by the Office of Managing Risk and Public Safety and comprises representatives of the eight Departmental bureaus, the Denver Administrative Service Center, and various Departmental offices. The Department has developed the "Department of the Interior Year 2000 Management Plan," which focuses on resolution of the Y2K problem and provides an overall strategy for managing Departmental mission-critical systems and infrastructure.

The Department's February 1998 "Year 2000 Management Plan," which was submitted to the Office of Management and Budget, reported that the Department had 95 mission-critical systems. Of the 95 mission-critical systems reported by the Department to the Office of Management and Budget, the Bureau of Indian Affairs and the Office of the Special Trustee

¹The portfolio systems is an inventory listing of 13 cross-cutting or sensitive systems that are receiving attention at the Secretarial level.

²Embedded microchips are "integrated circuits (miniature circuit boards)" that "control electrical devices" which include "elevators; heating, ventilation, and air conditioning (HVAC) systems; water and gas flow controllers; aircraft navigational systems; and . . . medical equipment" and office devices such as telephones, facsimile machines, pagers, and cellular telephones. (Department of the Interior's Office of Managing Risk and Public Safety "Year 2000 Embedded Microchip Hazards" [Website]).

for American Indians had 15 systems (see Appendix 1), of which 4 are included in the Department's information technology portfolio.³ To address the Y2K problems, the Bureau and the Office of the Special Trustee established a project management team comprising senior executives and a task group. The senior executives are the Acting Director, Office of Management and Administration, Bureau of Indian Affairs, and the Deputy Director for Operations, Office of the Special Trustee. The task group comprises a manager and a coordinator from the Office of Information Resources Management and nine members from the Bureau's Operations Service Center (3) and other Program offices (5) and the Office of the Special Trustee's Office of Trust Funds Management.

SCOPE OF EVALUATION

To accomplish our objective, we reviewed the documentation available that supported the Bureau of Indian Affairs information submitted to the Department's Chief Information Officer through February 1998. We performed our review at the Bureau's Operations Service and Facilities Management and Construction Centers and the Office of the Special Trustee for American Indians Office of Trust Funds Management, all of which are located in Albuquerque, New Mexico. We interviewed personnel responsible for project coordination to identify the Bureau's Y2K plans and progress.⁴ We also interviewed personnel involved in various aspects of the Y2K project, including coordination, compliance identification, software remediation, and project management.

The evaluation was conducted in accordance with the "Quality Standards for Inspections," issued by the President's Council on Integrity and Efficiency and, accordingly, included such tests and inspection procedures considered necessary to accomplish the objective. Our conclusions on the status of the progress made by the Bureau in addressing and remediating Y2K problems were based on reviews of documentation maintained by the Operations Service Center and discussions with the Y2K coordinator and the Y2K task group members who performed remediation or replacement of noncompliant applications or hardware. As specifically agreed to in our discussions with the Department's Chief Information Officer, we did not validate or certify that the Bureau's systems were Y2K compliant.

³The four Bureau of Indian Affairs and Office of the Special Trustee for American Indians applications or systems contained in the Department's information technology portfolio are the Individual Indian Monies (IIM); Land Records Information System (LRIS); Omni Trust ES; and Facilities, Construction, Operations, and Maintenance (FACCOM) system.

⁴The Bureau of Indian Affairs is responsible for remediating the Y2K problem for existing systems, such as the Individual Indian Monies system of the Office of Trust Funds Management, Office of the Special Trustee for American Indians.

RESULTS OF EVALUATION

Although the Bureau's Y2K project management had begun to identify systems and had developed a master plan for remedying Y2K problems, it had not completed any of the six objectives that the Chief Information Officer had requested us to evaluate. The specific actions taken by the Bureau related to each objective are discussed in the paragraphs that follow. As a result of not completing the objectives, we believe that there is an increased risk that the Bureau may not meet the Office of Management and Budget's target date of March 1999 for having compliant Y2K systems implemented. The Bureau has recently awarded contracts to assist in its assessment, renovation, and implementation of compliant systems; therefore, we have not made any recommendations. However, the Bureau should ensure that sufficient resources are made available to meet its milestone dates.

Automated Information Systems Inventory

All of the Bureau's mission- and nonmission-critical automated information systems may not have been included in its inventory. According to the Department's milestone dates, agencies were required to have mission-critical systems inventoried and systems that were not Y2K compliant identified by June 1997. Although national systems that were deemed mission critical⁵ by the Bureau had been identified and noncompliance had been determined, 8 of the 12 Bureau area offices and 10 of 15 Bureau program and division offices had not responded to inventory requests made by the Bureau's Director, Office of Management and Administration, dated January, July, and September 1997. Therefore, the Bureau had little assurance that all mission- and nonmission-critical systems had been identified and reported to the Department's Chief Information Officer.

Auditable Cost Estimates

The documentation used to support the Bureau's cost estimates for correcting the Y2K problem in each of the Bureau's 15 mission-critical systems was not maintained. To accurately report the costs associated with correcting the Y2K problem, Office of Management and Budget guidelines state that costs to rectify noncompliant Y2K systems should be specifically related to Y2K efforts, such as repairing the lines of source code⁶ or replacing the systems. If a noncompliant system is to be replaced for reasons not specifically attributable to Y2K, the cost of replacement should not be reported as a cost to correct the Y2K problem. However, any contract costs that are associated with the Bureau's efforts in assessing, renovating, and implementing Y2K-ready systems should be included in the Bureau's cost estimates.

⁵These systems were deemed mission critical based on the systems' effect on accounting for and distributing funds to organizations, tribes, and individual Indians.

⁶Lines of source code are statements and instructions used by the computer to execute the tasks of computer programs. (Computer Desktop Encyclopedia, Version 9.4, 4th quarter, 1996)

Although the Bureau's cost estimates were not auditable, we attempted to determine whether the methodology used by the Y2K task group to develop cost estimates was reasonable based on a "re-creation" of cost estimates for 2 of the 15 systems. The original methodology used by the Bureau was based on an estimate of the percentage of date-sensitive lines of source code to the total number of lines of source code multiplied by the Gartner Group's⁷ estimated cost of \$1.70 per line of source code to be corrected.⁸ We determined that the methodology used to develop the costs was reasonable; however, the estimates had not been updated to reflect more recent information that may affect the estimates. For example, applications that run on the UNISYS platform were being "cleaned up" by deleting unnecessary lines of source code, including the Oil and Gas module that had its total lines of source code reduced from 43,989 to 41,250. The methodology used by the Bureau may require that the estimated lines of source code requiring remediation and the associated cost estimate be reduced. Also, the cost to correct the Facilities, Construction, Operations, and Maintenance (FACCOM) system, which is run on the IBM mainframe platform, for Y2K compliance will not be accomplished through the code remediation effort, as originally anticipated by the Bureau. Instead, the FACCOM system is scheduled to be replaced by March 1999. The replacement system is necessary to allow the system to operate with current mainframe or client/server operating systems, not for reasons directly related to correcting Y2K problems. Therefore, the estimated cost of \$254,000 reported to correct the Y2K problem for the FACCOM system was overstated.

In addition, the cost of \$4.8 million to remediate the Y2K problem in the Individual Indian Monies (IIM) system as reported to the Department was incorrect. The \$4.8 million was the estimated cost for the first year of development and implementation of the IIM replacement system. The IIM is being replaced for a number of reasons, such as to meet the requirements mandated by the American Indian Trust Fund Management Reform Act of 1994, not just to correct the Y2K problem; therefore, the \$4.8 million reported to remediate the Y2K problem was overstated. However, because the IIM replacement system is not planned to be implemented until after the year 2000, costs to repair the existing system should be estimated and reported to the Department.

Designation of Responsible Individuals

The Departmental Chief Information Officer requested that we determine whether responsible officials had been specifically named. As of March 18, 1998, the Assistant Secretary for Indian Affairs had designated, by title, the Y2K executive; by office, the Y2K coordinating office; and by name, the individuals who made up the Y2K task group. In addition, a representative from the Office of the Special Trustee was included as part of the

⁷A computer services company that provides independent advice to business professionals making information technology decisions.

⁸The task group estimated that about 10 percent of its total lines of source code were date sensitive. For example, if a system had 425,000 lines of source code, 42,500 lines of source code would be date sensitive and thus would require repair. The 42,500 was then multiplied by the Gartner Group's cost estimate of \$1.70 to repair a line of source code, which would result in an estimated cost of \$72,250.

Bureau's Y2K task group. We believe that designating the Y2K executive by title and the Y2K coordinating office by office rather than by name and title of individuals did not meet the intent of the Chief Information Officer's request to have responsible individuals named.

Annual Personnel Performance Evaluation Plans

The Secretary of the Interior's December 1997 memorandum and the Assistant Secretary for Indian Affairs February 1998 memorandum required that "a critical performance element for identifying and remedying the Y2K" problem be included as part of each responsible official's annual performance plan. Responsible officials are defined in the memorandum as agency directors, agency Y2K executives, agency information resources management coordinators, safety officials, and all others as determined by the Y2K executive. In addition, the Assistant Secretary required that the elements be included in the annual personnel performance plans by February 27, 1998. However, as of March 18, 1998, we found that except for one member of the Y2K task group, the elements were not included in the annual personnel performance plans of the Bureau's and the Office of the Special Trustee's Y2K executives and the individual members of the Y2K task group, which included the Director, Information Resources Management.

Plan for Milestones

We found no documentation to support the milestones established by the Bureau. The 15 systems included in the Bureau's inventory were being evaluated and remediation was planned for Y2K compliance. However, the milestone dates established in the Bureau's Y2K master plan for analyzing existing code had slipped by approximately 2 months. According to a member of the Y2K task group, these dates were not met because the software tool planned for use in identifying and assisting in remediating lines of source code was originally estimated to be available in January 1998; however, as of March 18, 1998, the tool had not been purchased. Therefore, the current Y2K master plan may not reflect achievable milestone dates. However, Bureau officials indicated at the exit conference and in the Bureau's written response that they believed the acquisition of the "Millennium Solution" tool has brought the Bureau back on schedule.

Contingency Plans

We found that a formal contingency plan had been developed for only 1 of the 15 mission-critical systems. Since the milestone dates established by the Bureau have slipped by approximately 2 months, there may be a need for formalizing contingency plans for the remaining 14 systems. If additional mission-critical systems are subsequently identified (see section "Automated Information Systems Inventory" in this report), contingency plans for these systems may also need to be developed. However, the Y2K task group member responsible for the Bureau's application software and national systems stated that once the software tool was acquired, the milestone dates established in the master plan for the 15 systems could be met through personnel efforts such as increasing the number of shifts worked and the number of contractor staff.

Other Issues

The Department of the Interior and the Office of Management and Budget required that an inventory of all data exchanges with outside parties be completed by February 1, 1998, and that coordination with these parties to determine a transition plan occur by March 1, 1998. The Assistant Secretary for Indian Affairs had established a March 30, 1998, target date for the Y2K task group to contact the tribes and tribal organizations to ensure that systems which interface with Bureau systems are Y2K compliant. However, we found that the letter requesting information from the Bureau's data exchange partners to accomplish the coordination effort had not been issued as of March 18, 1998.

The Bureau has reported to the Departmental Chief Information Officer that it has four systems which are compliant except for independent verification and validation. However, the Bureau has not conducted regression testing,⁹ integrated testing,¹⁰ or Y2K testing on these systems. Instead, the Bureau's Y2K project management has relied on the recent design and implementation of these systems.

On May 12, 1998, we held an exit conference to discuss a preliminary draft of the report with Y2K officials from the Bureau and the Office of the Special Trustee and with the Department's Deputy Chief Information Officer. Office of the Special Trustee officials generally agreed with our findings but provided no written response to the report. Bureau officials also generally agreed with our findings and provided additional information in a May 15, 1998, response (see Appendix 2). Based on the discussions and the response, we made changes to the report as appropriate; however, we did not revise our report to reflect changes or improvements made by the Bureau since March 18, 1998. In its response, the Bureau stated that contracts had been awarded and corrective actions were being taken to ensure that its automated information systems will be Y2K compliant.

The legislation, as amended, creating the Office of Inspector General requires semiannual reporting to the Congress on all audit reports issued, the monetary impact of audit findings, actions taken to implement audit recommendations, and identification of each significant recommendation on which corrective action has not been taken.

We appreciate the assistance of personnel at the Bureau of Indian Affairs and the Office of the Special Trustee for American Indians in the conduct of our audit.

⁹In software development, "regression testing" is defined as "testing a program that has been modified in order to ensure that additional bugs have not been introduced." (Computer Desktop Encyclopedia, Version 9.4, 4th quarter, 1996.)

¹⁰"Integrated" is defined as "a collection of distinct elements or components that have been built into one unit." (Computer Desktop Encyclopedia, Version 9.4, 4th Quarter, 1996.)

BUREAU OF INDIAN AFFAIRS MISSION-CRITICAL SYSTEMS INVENTORY*

<u>System Name or Acronym</u>	<u>Description</u>	<u>Estimated Cost for Compliance</u>
Social Services	A system that processes general assistance payments to individual Indians.	\$72,250
Individual Indian Monies (IIM)	Tracks funds due individual Indians and tribes from leasing, permits, and other uses of Indian lands. (Interfaces with IRMS.)	\$4,800,000
Land Records Information System (LRIS)	A land title system showing and tracking Indian ownership, including all rights conveyed or changed over time. Provides official reports for title status and probate inventory.	\$68,000
Omni Trust ES	A system for tracking funds applied to Indian trust accounts and allotments to individual Indians. Records investing and payout information. (Interfaces with IRMS.)	0
Facilities, Construction, Operations, and Maintenance (FACCOM)	Maintains facilities inventory data, prioritizes deferred maintenance deficiencies, monitors progress of constructions projects, and calculates operations and maintenance funding for all property owned or operated by the Bureau of Indian Affairs.	\$254,000
National Indian Irrigation Management System (NIIMS)	Tracks and bills assessments for costs of operations and maintenance of Indian irrigation projects to be reimbursed to the Government.	\$42,500

*Information for system name or acronym and for description is from the Bureau of Indian Affairs, and information for estimated costs is from the February 1998 "Department of the Interior Year 2000 Management Plan."

<u>System Name or Acronym</u>	<u>Description</u>	<u>Estimated Cost for Compliance</u>
Lease/Range - Subsystem of the Integrated Records Management System (IRMS)	A system for managing payouts for leases on Indian lands, based on interests in contracts on Indian lands.	\$43,000
Owner - Subsystem of the Integrated Records Management System (IRMS)	A system that tracks ownership of Indian tribal and trust lands.	\$35,000
People - Subsystem of the Integrated Records Management System (IRMS)	A census and demographic database on individuals who are enrolled members of tribes or who have interests in Indian trust assets.	\$34,700
Royalty Distribution and Reporting System (RDRS)	A tracking system for mineral and surface land ownership for oil and mineral leases.	\$9,200
Lease Distribution	A payout system for leases on Indian trust lands	\$1,700
Loan Management Accounting System (LOMAS)	A loan management and accounting system for economic development programs.	0
Osage Annuity System	A system to pay out monies to members of the Osage Tribe who are decedents of the original Head Right owners.	0
Tribal Allocation Priority System (TAPS)	A system that is used to develop budget estimates based on tribal priorities.	\$5,000
Land Title Mapping System (GIS)	A geographical information system (GIS) that has been tailored to support the use and application of spatial data technologies throughout the Bureau of Indian Affairs. Reports boundary and ownership in a land status map.	0
Total		<u>\$5,365,350</u>



IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
INFORMATION RESOURCES MANAGEMENT
OPERATIONS SERVICE CENTER
500 GOLD AVENUE, S.W.
P.O. BOX 888
ALBUQUERQUE, NEW MEXICO 87103

Memorandum

May 15, 1998

To: Diane Sandy, Office of Inspector General
Department of the Interior

Linda Richardson, Office of Audit & Evaluations
Bureau of Indian Affairs

From: Nancy Jemison, Year 2000 Executive
Bureau of Indian Affairs

Subject: Year 2000 Review

This is a follow up the telephone exit conference held on Tuesday May 12, 1998.

Attached, you will find the Bureau of Indian Affairs (BIA) response to the Year 2000 audit review. Also attached, you will find a working draft, of the BIA Year 2000 Master Plan.

During the telephone exit conference reference was made about publishing this information to the IG Web site. The BIA's Y2K Master Plan is a working draft, for this reason we do not want this document published on any Web site, at this point in time.

**RESPONSE TO DOI INSPECTOR GENERAL'S SURVEY REPORT
YEAR 2000 REVIEW
BY
THE BUREAU OF INDIAN AFFAIRS**

15 MAY 1998

Automated Information Systems Inventory

All of the Bureau's mission and nonmission-critical automated information systems may not have been included in its inventory. According to the Department's milestone dates,

agencies were required to have mission-critical systems inventoried and systems that were not Y2K compliant identified by June 1997. Although national systems that were deemed mission critical' by the Bureau had been identified and noncompliance had been determined, 8 of the 12 Bureau area offices and 10 of 15 Bureau program and division offices had not responded to inventory requests made by the Bureau's Director, Office of Management and Administration, in January, July, and September 1997. Therefore, the Bureau had little assurance that all mission and nonmission-critical systems had been identified and reported to the Department's Chief Information Officer.

BIA Response:

The BIA has placed our highest priority on the inventory of National Systems, which are mission critical. BIA's OIRM OSC is responsible for maintaining all the National Applications, most of which are housed on the Unisys platform in ALBQ or on the IBM in Reston at USGS. BIA expected a small response to the inventory request of these national systems from area, agency or school offices.

We recognize that there may be local safety and/or program essential systems in local facilities. In order to gain cooperation from areas, agencies and schools, the BIA Y2K team has visited the following areas as of May 15: Aberdeen, Billings, Navajo, Portland, Phoenix, and Sacramento. The Y2K Team will visit the remaining Areas within the next 30 days. The result of our visits is a much higher participation from local offices. As of May 15, 70% of POC information for embedded systems and telecommunications equipment have been received from areas and agencies. These data are being entered into an Inventory Database. With the help of Mitretek, we are in the process of sending a second data call (See Attachment 1), via the use of electronic forms, to collect inventory data of less critical components such as personal computers, office automation software, local databases, etc. Mitretek is also helping the BIA develop a Year 2000 web site (See Attachment 2 for sample screens of the IHS Web site) to facilitate information dissemination and local systems/software/hardware inventory and assessment. Area, agency and school Y2K POCs who have Internet access will be able to enter and update inventory data for local facilities, check compliance status of hardware/software against known baseline compliance data and/or using procedures, and generate compliance status reports online. Tribes are also encouraged to take advantage of this facility to support their Y2K compliance needs.

Auditable Cost Estimates

¹These systems were deemed mission critical based on the system's effect on accounting for and distributing funds to organizations, tribes, and individual Indians.

The documentation used to support the Bureau's cost estimates for correcting the Y2K problem in each of the Bureau's 15 mission-critical systems was not maintained. To accurately report the costs associated with correcting the Y2K problem, Office of Management and Budget guidelines state that costs to rectify noncompliant Y2K systems should be specifically related to Y2K efforts, such as repairing the lines of source code¹ or replacing the systems. If a noncompliant system is to be replaced for reasons not specifically attributable to Y2K, the cost of replacement should not be reported as a cost to correct the Y2K problem. However, any contract costs that are associated with the Bureau's efforts in assessing, renovating, and implementing Y2K-ready systems should be included in the Bureau's cost estimates. Although the Bureau's cost estimates were not auditable, we attempted to determine whether the methodology used by the Y2K task group to develop cost estimates was reasonable based on a 're-creation' of cost estimates for 2 of the 15 systems. The original methodology used by the Bureau was based on an estimate of the percentage of date-sensitive lines of source code to the total number of lines of source code multiplied by the Gartner Group's² estimated cost of \$1.70 per line of source code to be corrected.³ We determined that the methodology used to develop the costs was reasonable; however, the estimates had not been updated to reflect more recent information that may affect the estimates. For example, applications that run on the UNISYS platform were being 'cleaned up' by deleting unnecessary lines of source code, including the Oil and Gas module that had its total lines of source code reduced from 48,989 to 41,250. The methodology used by the Bureau would require that the estimated lines of source code requiring remediation and the associated cost estimate be reduced. Also, the cost to correct the Facilities, Construction, Operations, and Maintenance (FACCOM) system, which is run on the IBM mainframe platform, for Y2K compliance will not be accomplished through the code remediation effort, as originally anticipated by the Bureau. Instead, the FACCOM system is being replaced by March 1999 because the source code cannot be remediated so that the system can operate with current mainframe or client/server operating systems, not for reasons directly related to correcting Y2K problems. Therefore, the estimated cost of \$254,000 reported to correct the Y2K

¹Lines of source code are statements and instructions used by the computer to execute the tasks of computer programs. (Computer Desktop Encyclopedia, Version 9.4, 4th quarter, 1996)

²A computer services company that provides independent advice to business professionals making information technology decisions.

³The task group estimated that about 10 percent of its total lines of source code were date sensitive. For example, if a system had 425,000 lines of source code, 42,500 lines of source code would be date sensitive and thus would require repair. The 42,500 was then multiplied by the Gartner Group's cost estimate of \$1.70 to repair a line of source code, which would result in an estimated cost of \$72,250.

problem for the FACCOM system was overstated.

In addition, the cost of \$4.8 million to remediate the Y2K problem in the Individual Indian Monies (IIM) system as reported to the Department was incorrect. The \$4.8 million was the estimated cost for the first year of development and implementation of the IIM replacement system. The IIM is being replaced for a number of reasons, such as to meet the requirements mandated by the American Indian Trust Fund Management Reform Act of 1994, not just to correct the Y2K problem; therefore, the \$4.8 million reported to remediate the Y2K problem was overstated. However, because the IIM replacement system is not planned to be implemented until after the year 2000, costs to repair the existing system should be estimated and reported to the Department.

BIA Response:

The BIA is in the process of setting up a project file, included in the file will be all support documentation for cost estimates. With Mitretek's help, the BIA is developing a Year 2000 Master Plan (See Attachment 3 for a working draft of the BIA Y2K Master Plan). The Plan more accurately accounts for Year 2000 compliance expenses.

The BIA Y2K coordinator had submitted an estimate of \$62K for the Year 2000 remediation of the IIM sub-system to the DOI Y2K coordinator more than one year ago. DOI Office of the Special Trustee had submitted Y2K information to the same DOI Y2K coordinator. A decision inside DOI led to the decision to include \$4.8 million as the Year 2000 cost for IIM replacement, instead of \$62K supplied by BIA.

Designation of Responsible Individuals

The Assistant Secretary for Indian Affairs designated, by title, the Y2K executive; by office, the Y2K coordinating office; and by name, the individuals who made up the Y2K task group. In addition, a representative from the Office of the Special Trustee was included as part of the Bureau's Y2K task group. The Departmental Chief Information Officer requested that we determine whether responsible officials had been specifically named. We believe that designating responsible individuals by title rather than by name and title did not meet the intent of the Chief Information Officer's request to have responsible individuals named.

BIA Response:

The BIA has a Year 2000 project team which was formed in February 1998. The Director of Management and Administration is the BIA Year 2000 Executive who is responsible for ensuring overall Year 2000 compliance within the BIA, while the Office of

Information Resources Management is serving as the Year 2000 coordinating office within the BIA. The Director of Facilities Management is serving as the BIA's Embedded Technology Executive. In addition, the following staff is serving on the BIA's Year 2000 Task Group:

<i>Nancy Jemison</i>	<i>Year 2000 Executive</i>
<i>George Gover</i>	<i>Year 2000 Manager</i>
<i>Bill Collier, Jr.</i>	<i>Year 2000 Embedded System Executive</i>
<i>Ed Socks</i>	<i>Year 2000 Coordinator</i>
<i>Mona Infield</i>	<i>Year 2000 Application Software & National Systems</i>
<i>Ron Shepherd</i>	<i>Year 2000 WAN/LAN</i>
<i>Don Mayer</i>	<i>Year 2000 Mainframe Hardware & Software</i>
<i>Dr. Ken Ross</i>	<i>Year 2000 Office of Indian Education Programs</i>
<i>Al Lindfors</i>	<i>Year 2000 Embedded Chip</i>
<i>Byron Carr</i>	<i>Year 2000 Telephone/Voice/Data</i>
<i>Bob McKenna</i>	<i>Year 2000 Office of Trust Funds Management</i>
<i>Craig Jones</i>	<i>Year 2000 Law Enforcement</i>
<i>Bill Bonner</i>	<i>Year 2000 GIS Systems</i>

The BIA's Year 2000 Task Group is expected to grow as Year 2000 efforts progress throughout the BIA's Area Offices, Agencies, program offices and schools. These local offices have begun to form local Year 2000 task groups dedicated to the Year 2000 compliance effort. To assist in project management and other Year 2000 activities, the BIA has selected Mitretek, an independent contractor, to assist the Year 2000 Task Group and report its progress to the BIA's Year 2000 Executive.

Annual Personnel Performance Evaluation Plans

The Secretary of the Interior's December 1997 memorandum and the Assistant Secretary for Indian Affairs February 1998 memorandum required that "a critical performance element for identifying and remedying the Y2K" problem be included as part of each responsible official's annual performance plan. Responsible officials are defined as agency directors, agency Y2K executives, agency information resources management coordinators, safety officials, and all others as determined by the Y2K executive. In addition, the Assistant Secretary required that the elements be included in the annual personnel performance plans by February 27, 1998. However, as of March 18, 1998, we found that except for one member of the Y2K task group, the elements were not included in the annual personnel performance plans of the Bureau's and the Office of the Special Trustee's Y2K executives and the individual members of the Y2K task group, which included the Director, Information Resources Management.

BIA Response:

The BIA Y2K Executive had sent out a memo to all areas, agencies and schools for this purpose 10 days before IG's visit. Due to the wide geographical distribution of the BIA's offices, it takes about 2 weeks for the information to be communicated to the lower levels of the field offices. This could explain why most of the Y2K project staffers didn't have it included in their annual performance plan at the time of IG's audit. We believe this has become standard practice today. Additionally, the BIA will have a critical performance element for identifying and remedying the Y2K added for all field staff who are designated as Y2K Point of Contacts(POC).

Plan for Milestones

We found no documentation to support that the milestones established by the Bureau were achievable. Furthermore, even though the 15 systems included in the Bureau's inventory were being evaluated and remediation was planned for Y2K compliance, the milestone dates established in the Bureau's Y2K master plan had slipped by approximately 2 months. According to a member of the Y2K task group, these dates were not met because the software tool planned for use in identifying and assisting in remediating lines of source code was originally estimated to be available in January 1998; however, as of March 18, 1998, the tool had not been purchased. Therefore, the current Y2K master plan may not reflect achievable milestone dates.

BIA Response:

DII has demonstrated to BIA its Millennium Solution tool. BIA has tested the tool and has been using the tool for assessment and code remediation for the last month. The Master Plan had not been slipped by 2 months.

Milestones and resource requirements are well documented in the attached Year 2000 Master Plan.

Contingency Plans

We found that a formal contingency plan had been developed for only 1 of the 15 mission-critical systems. Since the milestone dates established by the Bureau have slipped by approximately 2 months, there may be a need for formalizing contingency plans for the remaining 14 systems. If additional mission-critical systems are subsequently identified (see Section 'Automated Information Systems Inventory' in this report), contingency plans for these systems may also need to be developed. However, the Y2K task group member responsible for the Bureau's application software and national systems stated that once the

software tool was acquired, the milestone dates established in the master plan for the 15 systems could be met through personnel efforts such as increasing the number of shifts worked and increasing the number of contractor staff.

BIA Response:

The BIA will be developing detailed contingency plans as part of the BIA Y2K Master Plan.

Other Issues

The deadline established by the Department of the Interior and the Office of Management and Budget required that an inventory of all data exchanges with outside parties be completed by February 1, 1998, and that coordination with these parties to determine a transition plan occur by March 1, 1998. The Assistant Secretary for Indian Affairs had established a March 30, 1998, target date for the Y2K task group to contact the tribes and tribal organizations to ensure that systems which interface with Bureau systems are Y2K compliant. However, we found that the letter requesting information from the Bureau's data exchange partners to accomplish the coordination effort had not been issued as of March 18, 1998.

BIA Response:

The BIA has sent a letter on 31 March 1998 to all known Data Exchange partners, some of which happened to be Tribes. No letters were sent to those Tribes that do not have data exchange with the BIA's systems. As a way of providing Y2K support to the Tribes, we invite Tribes to BIA local Year 2000 information meetings and we plan to share our Year 2000 knowledge base with the Tribes through the use of our Year 2000 web in the near future.

The Bureau has reported to the Departmental Chief Information Officer that it has four systems that are compliant except for independent verification and validation. However, the Bureau has not conducted regression testing,¹ integrated testing,² or Y2K testing on

¹In software development, "regression testing" is defined as "testing a program that has been modified in order to ensure that additional bugs have not been introduced." (Computer Desktop Encyclopedia, Version 9.4, 4th quarter, 1996.)

²"Integrated" is defined as "a collection of distinct elements or components that have been built into one unit." (Computer Desktop Encyclopedia, Version 9.4, 4th Quarter, 1996.)

these systems. Instead, the Bureau's Y2K project management has relied on the recent design and implementation of these systems.

BLA Response:

The BLA has contracted for Y2K testing support, Anteon has been selected to develop a test plan that will address tests mentioned above. A schedule for conducting these tests is included in the attached Year 2000 Master Plan.

If you have any questions on these materials, please refer questions to Ed Socks. Mr. Socks served as the audit coordinator for this review, office number 505-248-7156, email address: ed_socks@mail.bia.gov

[NOTE: YEAR 2000 MASTER PLAN NOT INCLUDED BY OFFICE OF INSPECTOR GENERAL.]

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